AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning at page 13, line 3 and ending at page 14, line 27 as follows:

FIG. 3 schematically shows, in simplified cross-sectional view, a sequence of steps for performing an illustrative, but not limitative, embodiment of a high quality, high reproduction fidelity "HTS" (Heat-Transfer-Stamp) process for performing nano-imprint lithography of a metal-based substrate/workpiece, i.e., an Al, Al alloy, or Al/NiP substrate workpiece, utilizing a conventional Ni-surfaced "master" or stamper/imprinter, which process includes the advantageous substrate/workpiece pre-heating step of the invention. Specifically, in a preliminary step, a thin film or layer of a thermoplastic polymer, e.g., polymethyl methacrylate (PMMA), is spin-coated on an annular disk-shaped Al/NiP substrate/workpiece, corresponding to substrates conventionally employed in the manufacture of hard disk magnetic recording media. In another preliminary step, a stamper/imprinter having a Ni or Ni alloy imprinting surface formed with a negative image pattern of features, e.g., a servo pattern with lateral dimensions of about 600 nm and heights of about 170 nm, is fabricated by conventional optical lithographic patterning/etching techniques, provided with a thin layer of an anti-sticking or release agent (typically a fluorinated polyether compound such as Zdol$^{TM}$, available from Ausimont, Thorofare, NJ), and installed in a stamping/imprinting tool, by means of an upper mounting block in contact with the flat upper surface of the stamper/imprinter. The upper mounting block, termed a "top mold" in the figure, includes a heating means for maintaining the stamper/imprinter at an elevated temperature close to the glass transition temperature $T_g$ of the thermoplastic polymer layer, e.g., ~ 105°C for PMMA. In the next step according to the

invention, the substrate/workpiece is heated, as by placing the lower surface thereof in contact with a heater block separate from the stamping/imprinting tool, to an elevated temperature substantially greater than the glass transition temperature ($T_g$) of the PMMA thermoplastic layer, e.g., above about 105 °C, typically about 200 °C, after which the heated substrate/workpiece is rapidly transferred to the stamping/imprinting tool such that its lower surface is supported by a heated bottom mold (maintained at the same temperature ~~$<$~~ ~~$T_g$~~ $\simeq T_g$ as the heated top mold) and the patterned imprinting surface of the Ni-based stamper/imprinter pressed into contact with the surface of the heated thermoplastic PMMA layer of the substrate/workpiece at a suitable pressure, e.g., about 10 MPa. The short interval required for transfer of the heated substrate/workpiece to the stamping/imprinting tool for imprinting of the PMMA layer prior to lowering of the temperature of the PMMA layer below a minimum temperature required for imprinting, is termed the "process window". According to the invention, the transfer step is performed consistent with the short interval requirement of the process window, i.e., substrate/workpiece transfer is performed as rapidly as is practicable. Typically, transfer of the heated substrate/workpiece to the stamping/imprinting tool is accomplished within several seconds in order to prevent cooling of the heated PMMA thermoplastic layer to a temperature below that which provides optimal, high quality, faithful replication of the surface features of the imprinting surface of the stamper/imprinter. As a consequence of the high pressure urging of the patterned imprinting surface of the stamper/imprinter against the heated PMMA thermoplastic layer, the surface of the heated thermoplastic PMMA layer is imprinted (i.e., embossed) with the negative image of the desired pattern on the imprinting surface of the Ni-based stamper/imprinter. The stamper/imprinter is then maintained within the stamping/imprinting tool in contact with the PMMA layer and under pressure for an interval until

the temperature of the substrate/workpiece with the imprinted PMMA layer thereon is lowered to the fixed temperature of the top and bottom molds, e.g., about 120 °C, after which interval the substrate/workpiece is separated from the substrate/workpiece to leave replicated features of the imprinting surface in the surface of the PMMA layer and removed from the stamping/imprinting tool.